

ASSY NOMENCLATURE: MANIPULATOR FOOT RESTRAINT
 ASSEMBLY PART NO: SED 2010Q10

CRITICAL ITEMS LIST

PREPARED BY: L. HAHN & F. PERAZZO

REPORT NO: RWS-07-A-8
 REVISION A
 DATE: 17 MAY 1984

FMEA REF	NAME, QTY & DRAWING REF DESIGNATION	CRIT	FAILURE MODE AND CAUSE	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
A3	A Adaptive Payload Carrier (APC) Interface Mechanism QTY (1) DWG C95-101	2/2	A3 - Latch fails to open due to contamination or galling.	END ITEM Unable to open latch C/E INTERFACE Unable to remove MFR from APC MISSION Loss of MFR function; unable to accomplish mission objectives. CREW / VEHICLE None	A. Design Materials per tables 1 & 2 of MSFC-SPEC-522A are certified for traceability/quality. Anodic hardcoating per MIL-A-8625C on aluminum interfaces with relative motion minimizes galling and wear. Contamination caused by corrosion by-products eliminated by extensive use of thermal control coating and solid (Moly di-sulfide) lubricant coating.

Grumman Corporation

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ASSEMBLY PART NO.: 560 3910340

CRITICAL ITEMS LIST

PREPARED BY: L. HAHN & F. PERAZZO

REPORT NO: RMS 87 R 6

REVISON: A 8

DATE: 8 JULY 1989

GRUMMAN

FMEA REF	NAME, QTY & DRAWING REF DESIGNATION	CRIT	FAILURE MODE AND CAUSE	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
A3 A	Adaptive Payload Carrier (APC) Interface Mechanism QTY (1) DWG C95-101	2/2	A3 - Latch fails to open due to contamination or galling.	<p>END ITEM Unable to open latch</p> <p>GFE INTERFACE Unable to remove MFR from APC</p> <p>MISSION Loss of MFR function; unable to accomplish mission objectives.</p> <p>CREW / VEHICLE None</p>	<p>D. TEST HISTORY</p> <ol style="list-style-type: none"> Acceptance test per procedure 380-94-N at Grumman (7/7/83) before and after 23 tests. ATP includes functional test of operating functions and a general visual inspection. Stress test per procedure 380-10101 at Grumman (7/7/83). Demonstrated stiction end play less than 5 inch for 100 pound load in any direction and deflection less than 3 inches lateral and 2 inches longitudinal for 1 hundred pound loads. Vibration and shock test per procedure 380-9801 at Grumman (7/7/83). Demonstrated ability to withstand design levels without structural failure with no significant resonance. Several screws required the application of torque. APC/MFR ultimate load test per STS83-0944 at Rockwell (4/83). Loads applied in 14 steps, each comprising 1/16 of total. Yield was observed at the ultimate load of 14 x link. Thermal vacuum test at JSC (7/23/84). MFR was operated at ambient temperature, plus 224 and -197° (average lowest achievable chamber temp) at an average vacuum of 60006 low. Center of gravity test at JSC (12/3/84). Moment of inertia swing test at JSC (4/7/85). <p>C. INSPECTION</p> <ol style="list-style-type: none"> NAVPRO inspects all production end items at completion of final assembly. Anodic hard coated aluminum parts inspected for compliance to MIL-A-8625 C by DCAS. Certificate of compliance on file at Grumman Belpage. Thermal Control Coating process is controlled by inspection (spec prime, cure, post coating and cure), and sample testing for coating thickness, coating adhesion, and emittance/solar absorption. <p>D. FAILURE HISTORY</p> <p>None (per PRACA database). The MFR has been successfully utilized on five missions, STS 14, 13, 51A, 51, and 41C.</p> <p>E. TURNAROUND</p> <p>Inspection per S2BNIA-05801NAC (8 DEC 1987) includes a functional test of all MFR operating functions and a general visual inspection.</p> <p>F. OPERATIONAL USE</p> <ol style="list-style-type: none"> Operational effect of failure - MFR cannot be used. Crew action - Attempt to disassemble latch or remove contamination. Crew training - Crew is trained in the use of general purpose tools available for this task. Mission Constraints - None. In Flight Checkout - Crew will inspect latch at the time of use.